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Analyzing the effect of selected micro nutrient supplementation on endurance running performance of trained athletes

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Abstract
Galore of sport experts think that athletes are born, others are of the view that they are the product of nature and nurture i.e. athletes are produced. So far my views and ideas are concerned athletes are the byproduct of a combination of both the factors mentioned above. Though athletes go through expert coaching and endowed with potentialities they often adopt unfair means for unnatural development of their performance. Despite all regulations and legislations they use substance of abuse for performance enhancement. The anti doping agencies are working hard in control and minimizing the issues and keeping athletes safe. Apart from coaching, training nutrition of athlete is also a crucial part which sometimes gets less priority especially in country like India. Though sport persons are guided with best training, provided atmosphere for their best grooming, they quite often lack in nutritional status. In this perspective supplementation with essential micro and macro nutrients can play a major role in development of athletic performance without being alleged by anti doping agencies. Considering the above fact the scholar premeditated to conduct a research directed towards analyzing the effect of selected micro nutrient supplementation on endurance running performance of trained athletes. For the study the scholar selected 31 boys who are categorically state level runners as volunteers. The scholar involved a Physician as expert for medical prescription and overall supervision who considering the nutrition status of the athletes and RDA prepared a course of supplementation. A supplementation protocol was designed with the micronutrients like Vit. C, Vit. E, Iron and calcium and employed on the athletes for 12 weeks and data with respect to their performance on endurance run i.e. 12 mins run and walk was recorded thrice pre test mid test and post test. The data were analyzed statistically and was observed that. Their performance developed cumulatively during the mid as well as the post tests. Thus the scholar arrived at the conclusion that micro nutrient supplementation can play a determining role in development of athletes performance.

Keywords: supplementation, mentioned, nurture, conclusion, control

Introduction
Athletic achievement is reliant primarily on genetic endowment in athletes with morphologic, psychologic, physiologic and metabolic traits specific to performance characteristics vital to their sport. Such genetically-endowed athletes must also receive optimal training to increase physical power, enhance mental strength, and provide a mechanical advantage. Still, athletes often attempt to go beyond training and use substances and techniques, often referred to as ergogenic aid, in attempts to gain a competitive advantage. Pharmacological agents, such as anabolic steroids and amphetamines, have been used in the past, but such practices by athletes have led to the establishment of anti-doping legislation and effective testing protocols to help deter their use. Thus, many athletes have turned to various dietary strategies, including the use of various dietary supplements (sports supplements), which they presume to be effective, safe and legal.

Despite all regulations and legislations athletes use substance of abuse for performance enhancement. The anti doping agencies are working hard in control and minimizing the issues and keeping athletes safe. Apart from coaching, training nutrition of athlete is also a crucial part which sometimes gets less priority especially in country like India. Though sport persons are guided with best training, provided atmosphere for their best grooming, they quite often lack in nutritional status. In this perspective supplementation with essential micro and macro nutrients can play a major role in development of athletic performance without being alleged by anti doping agencies.

Hidaka T. et.al. 2008. The Australian Institute of Sport, part of the government of Australia, does not recommend supplementation with vitamins C and E by athletes, except when they use these products as part of a research protocol or with proper monitoring.

Vitamin C is probably one of the most studied vitamins and one of the most controversial. The popularly believed benefits of vitamin C supplementation range from curing or preventing the common cold to reducing fatigue, wound healing, preventing injury, and enhancing performance capacity (Jaffe, 1984; Keith, 1989; National Research Council, 1989; Pike and Brown, 1984).

Considering the above facts the scholar premeditated to conduct a research directed towards analyzing the effect of

selected micro nutrient supplementation on endurance running performance of trained athletes.

Methodology: Basically the study is experimental in nature with pre mid and post test design. For the study the scholar selected 31 boys who are categorically state level runners as volunteers.

Subjects

Sl. No.	Name of club/institution	No. of subjects
1	Bengal athletic coaching centre, Mohanpur	10
2	Jonepur athletic coaching centre, Jonepur	11
3	Belgharia athletic club, Belgharia	10

To start with or at the very initial phase the scholar conducted tests on the athletic performance endurance running and to assess the present condition of the subjects related to their nutrition status pathological tests were conducted with the help of professional laboratory. Tests were conducted on the Vit. C, Vit. E, Vit. B12, Calcium, magnesium and Iron. To scholar involved a Physician as expert for medical prescription who considering the nutrition status of the athletes and RDA prepared a course of supplementation. A supplementation protocol was designed with the micronutrients like Vit. C, Vit. E,Vit. B12, Calcium, magnesium and Iron and employed on the athletes in the form of supplementation for 12 weeks. After the initial tests the mid tests and post tests were conducted at an interval of 6 weeks. So, from the above statement it is clear that the experimentation continued for 12 weeks or 3 months.

Result and discussion

Table 1: Trained Descriptive Statistics 12 mins run

	N	Minimum	Maximum	Mean	Std. Deviation
Pre test 12 Mins run&walk (Distance in mts.)	31	1945	3515	2820.42	351.585
Mid test 12 Mins run&walk (Distance in mts.)	31	2155	3542	2889.52	315.959
Post test 12 Mins run&walk (Distance in mts.)	31	2270	3540	2947.00	282.957
Valid N (listwise)	31				

According to table 1 the mean and SD. of 12 mins. Run and walk in the pre test are 2820.42 and 351.585 mts., during mid test the men and SD. are 2889.52 and 315.959 mts., and during post/final test mean are 2947.00 and 282.957 mts. respectively.

A general comparison among the means reveal that the performance of the athletes developed during the later to stages of mid and post tests.

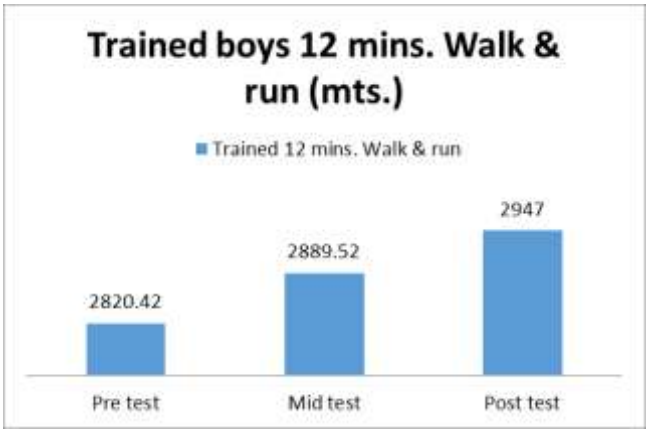

Fig 1: Column chart shows the means of 12 mins run and walk performance for trained boys.

From the column chart presented in the above figure also it is clear that the performance of the athletes developed in a cumulative fashion.

To assess the degree of difference between the means the scholar further computed paired samples t test as inferential statistics.

Table 2: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	**Pre test**	**2820.42**	**31**	**351.585**	**63.147**
	Mid test	2889.52	31	315.959	56.748
Pair 2	Pre test	2820.42	31	351.585	63.147
	Post test	2947.00	31	282.957	50.821
Pair 3	Mid test	2889.52	31	315.959	56.748
	Post test	2947.00	31	282.957	50.821

Table 3: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre test & Mid test	31	.980	.000
Pair 2	Pre test & Post test	31	.957	.000
Pair 3	Mid test & Post test	31	.972	.000

Table 4: Paired Samples Test of trained athletes in 12 min run and walk performance

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre test - Mid test	-69.097	75.748	13.605	-96.881	-41.312	-5.079	30	.000
Pair 2	Pre test - Post test	-126.581	115.392	20.725	-168.907	-84.255	-6.108	30	.000
Pair 3	Mid test - Post test	-57.484	77.662	13.949	-85.971	-28.997	-4.121	30	.000

From the paired samples test result presented in table 4 it is clear that the performance of the athletes developed significantly from pre test to mid test and mid test to post test.

Conclusion: From the findings of the study the scholar arrives at the conclusion that micronutrient supplementation positively influence the performance of an athlete. The supplementation is ethical and as well as do not face any restriction from the anti doping agencies. It is also worth mentioning that the micro nutrient supplementation not only aids the performance of an athlete it has a wide range of positive impact on the health of sport persons.

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